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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/726,977	11/30/2000	Won-Sung Choi	YPL-0014	2126

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EXAMINER

KACKAR, RAM N

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 02/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/726,977	Applicant(s) CHOI, WON-SUNG	
	Examiner Ram N Kackar	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 8-9 and 13-16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 8-9, 13 and 15-16 recite method limitations while being dependent upon apparatus claim. Therefore the scope of these claims is unclear. Claim 14 recites the limitation "the inert gas". There is insufficient antecedent basis for this limitation in the claim. Claim 1 on which this claim depends cites "an inert gas supply unit" and not an inert gas.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horie (US Patent 5928428) in view of Tanaka (US Patent 5091207) and further in view of Nozawa et al (US Patent 5290381).

Horie discloses a thin film deposition apparatus comprising, a reactor (Fig 1-1), a heater (Fig 1-2) capable of heating the chamber at least to 700 degrees C, inert gas and reaction gas

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supply portion wherein the reaction gas or the inert gas could be selected (Fig 1-5a and 5b), an exhaust pump (Fig 1-9) and Ozone gas supply (Fig 1-5c).

Horie does not disclose a selection transfer member for selecting transfer of ozone to either reaction chamber or exhaust pump and also does not disclose automatic removal of excess ozone generated by the ozone generator.

Tanaka discloses selection valves to switch main gas to reactor or exhaust pump (Fig 7 413/414 or 424/425).

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to provide for switching the Ozone line either to reactor for process use or to exhaust for purging the line for cleaning purposes. Also since Ozone generator production may not always equal consumption it would be obvious to remove excess Ozone so as to keep its pressure constant by sensing pressure and controlling removal of excess Ozone.

In claim 14 Argon is claimed as an inert gas. It would be very obvious to use Argon as an inert gas.

5. Claims 3, 6-10, 12-13 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horie (US Patent 5928428) in view of Tanaka (US Patent 5091207) and further in view of Nozawa et al (US Patent 5290381) as applied to claim 2 and further in view of Limb et al (US Patent 5352615).

Horie discloses heater and single valve Ozone transfer units for process transfer and thermal transfer unit but does not disclose a mass flow controller and an other valve in sequence for each.

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Limb et al disclose a valve and an MFC in sequence in configuration similar to the one cited in the claim, one for process transfer (See 311) and the other for thermal treatment transfer unit (See 312).

Also as discussed before Nozawa et al disclose automatic removal of excess Ozone and Tanaka discloses switching of gas line to either reactor for processing or to exhaust pump for purging.

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to replace the single valve transfer units with the configuration of Limb et al so as to be able to use mass flow controllers of different range in order to control Ozone flow accurately over a wide range.

6. Claims 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horie (US Patent 5928428) in view of Tanaka (US Patent 5091207) and further in view of Nozawa et al (US Patent 5290381) and Limb et al (US Patent 5352615) as applied to claim 10 and further in view of Nishikawa et al (US 5470390).

Nozawa et al disclose automatic removal of excess Ozone but do not disclose a check valve to prevent back flow of Ozone from removal side to the reactor.

Nishikawa et al disclose the use of check valve to prevent back flow of gas as in (Fig 2-15).

Therefore it would have been obvious to one of ordinary skill in the art at the time invention was made to install a check valve as a safety device to prevent back flow of exhausted Ozone to reactor.

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Response to Amendment

Applicants amendment filed on 1/6/2003 have been considered but not found to put the claims in a condition for allowance. The amended claims are derived from the following basic sub-assemblies.

- 1 Ozone generator and a combination of inert and reactive gases known in the prior art of Horie.
- 2 The automatic removal of excess Ozone well known in the art as automatic pressure control. (Nozawa et al)
- 3 Switching of gas lines to the reactor for process or to exhaust for purging is a very common practice in the art to enable cleaning of gas lines before changing over to another gas. (Tanaka)

These sub-assemblies are connected through conventional means using valves and mass flow controllers very well known in the art as discussed in the office action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK

February 24, 2003


BENJAMIN L. UTECH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700